

DOCKET NO: 195910US0PCT



IN THE UNITED STATES PATENT & TRADEMARK OFFICE

IN RE APPLICATION OF :
FREDERIC BORDEAUX, ET AL. : EXAMINER: ROSSI, J.
SERIAL NO: 09/622,044 :
FILED: DECEMBER 13, 2000 : GROUP ART UNIT: 1733
FOR: ANTI-LACERATION GLAZING :

APPEAL BRIEF

ASSISTANT COMMISSIONER FOR PATENTS
WASHINGTON, D.C. 20231

SIR:

This is an appeal from the Examiner's Final Rejection dated October 27, 2003, of Claims 12, 15-22 and 26-29. A Notice of Appeal and a Request for extension of time was timely filed on February 27, 2004. A Request for extension of time for filing the Appeal Brief is filed herewith.

I. REAL PARTY IN INTEREST

The real party in interest is Saint-Gobain Glass France, by virtue of the assignment filed herewith.

II. RELATED APPEALS AND INTERFERENCES

Appellants, Appellants' legal representative and their assignee are not aware of any appeals or interferences which will directly affect or be directly affected by or having a bearing

on the Board's decision in this appeal.

III. STATUS OF THE CLAIMS

The appealed claims are Claims 12, 15-22 and 26-29, the only claims in the above-identified application.

IV. STATUS OF THE AMENDMENT FILED UNDER 37 C.F.R. §1.116

The Amendment under 37 C.F.R. §1.116 filed December 22, 2003, will be entered for purposes of Appeal, as so stated by the Examiner in the Advisory Action of January 26, 2004.

V. THE APPEALED CLAIMS

A copy of the appealed claims is submitted in the attached Appendix I.

VI. SUMMARY OF THE INVENTION

The present invention provides a method of making a glazing which affords exceptional laceration protection to persons striking against the glazing after it has shattered. The lacerations that result when a person strikes against a shattered laminated glazing are far more severe than those that result when a person strikes against an intact glazing surface, which breaks up only afterwards. Accordingly, the present invention provides a method of making a anti-laceration automobile side window glazing comprising adhering two sheets of glass adapted to fit an automobile side window with an intercalary adhesive layer. The intercalary adhesive layer has a thickness of more than 0.76 mm. Each of the two sheets of glass has a thickness of from 1.5 to 3 mm and a core compressive stress in the central zone ranging from 20 to 50 MPa. The glazing, in a non-intact and bent state, has a Triple Laceration Index ("TLI")

of 7 or less, indicative of superior anti-laceration properties.

The Triple Laceration Index is described in Pickard J., Brereton P., Hewson A.: An objective method of assessing laceration damage to simulate facial tissues - The Triplex Laceration Index - Proceeding of 17th Conference - American Association of Automotive Medicine 1973, pages 148-165 (copy attached to Amendment filed September 15, 2003).

Claim 12 finds basis at page 3, line 4; and at page 4, lines 16-18; at page 5, lines 18-21; at page 8, lines 9-10 of the specification and in Claim 1 as originally filed.

Claim 15 finds basis at page 4, line 22 of the specification and in Claim 4 as originally filed.

Claim 16 finds basis at page 4, line 23 of the specification and in Claim 4 as originally filed.

Claim 17 finds basis at page 4, line 23 of the specification and in Claim 4 as originally filed.

Claim 18 finds basis at page 5, lines 1-7 of the specification and in Claim 5 as originally filed.

Claim 19 finds basis at page 5, line 1 of the specification and in Claim 5 as originally filed.

Claim 20 finds basis at page 5, lines 3-4 of the specification and in Claim 5 as originally filed.

Claim 21 finds basis at page 5, line 4 of the specification and in Claim 5 as originally filed.

Claim 22 finds basis at page 5, line 5 of the specification and in Claim 5 as originally filed.

Claim 26 finds basis at page 6, 2nd paragraph to page 7, line 2 of the specification and in

Claim 8 as originally filed.

Claim 27 finds basis at page 7, last paragraph of the specification and in Claim 9 as originally filed.

Claim 28 finds basis in Claim 11 as originally filed.

Claim 29 finds basis in Claim 11 as originally filed.

VII. THE ISSUE OF THIS APPEAL

1. Whether Claims 12, 15-19 and 28-29 are obvious under 35 U.S.C. §103(a) over Kramling et al in view of Rieser et al, or alternatively over Rieser et al in view of Kramling et al?

2. Whether Claims 20-22 are obvious under 35 U.S.C. §103(a) over Kramling et al in view of Rieser et al, or alternatively over Rieser et al in view of Kramling et al, and further in view of page 2, 4th paragraph of the specification of the present invention?

3. Whether Claims 26 and 27 are obvious under 35 U.S.C. §103(a) over Kramling et al in view of Rieser et al, or alternatively over Rieser et al in view of Kramling et al, and further in view of Fukawa et al?

VIII. GROUPING OF THE CLAIMS

Issue 1: Group I: Claims 12, 15-19 and 28-29.

Issue 2: Group I: Claims 20-22.

Issue 3: Group I: Claims 26-27.

IX. ARGUMENTS IN TRAVERSAL OF THE REJECTION

1. Claims 12, 15-19 and 28-29 stand rejected as obvious under 35 U.S.C. §103(a) over Kramling et al in view of Rieser et al, or alternatively over Rieser et al in view of Kramling et al.

A. Group I: Claims 12, 15-19 and 28-29

Claims 12, 15-22 and 26-29 are pending in this application. Independent Claim 12 relates to a method of making a anti-laceration automobile side window glazing comprising adhering two sheets of glass adapted to fit an automobile side window with an intercalary adhesive layer, wherein

said intercalary adhesive layer has a thickness of more than 0.76 mm;

each of said two sheets of glass has a thickness of from 1.5 to 3 mm;

each of said two sheets of glass has a core compressive stress in the central zone ranging from 20 to 50 MPa; and

said glazing, in a non-intact and bent state, has a Triplex Laceration Index of 7 or less.

In contrast, Kramling fails to disclose or suggest a method of making an anti-laceration automobile side window glazing which has an intercalary adhesive layer having a thickness of more than 0.76 mm and that the glazing, in a non-intact and bent state, has a Triplex Laceration Index of 7 or less. In addition, Rieser fails to disclose or suggest the core compressive stress in the glass sheets and that the glazing, in a non-intact and bent state, has a Triplex Laceration Index of 7 or less.

Kramling is directed to a laminated glazing having both the high resistance to particles of thermally toughened glass and the high visibility when cracked of annealed glass. See, e.g., Kramling at column 2, lines 45-58. Kramling's glazing contains a sheet of plastic sandwiched by two glass sheets (col. 3, line 41). At col. 5, lines 38-41, a laminate of glass/plastic/glass

having the thickness of 2/0.76/2 is disclosed. However, 0.76 is different from the claimed

“more than 0.76.” In addition, the reference states at col. 5, lines 32-41 that:

“...in order not to increase the weight of the panes-and their cost which is a direct function of their thickness when a toughened pane is substituted for a laminated pane-the aim is not excessively to increase the total thickness of the pane when this pane is composed of two glass sheets. Typically, a change is made from a toughened pane 3.2 mm thick to a laminate 2/0.76/2, the intermediate number corresponding to the thickness of the sheet of plastics material (PVB).”

In other words, Kramling wants to replace a 3.2 mm thick pane with a laminate pane that is not substantially thicker so as not to increase the weight and the cost. Thus, Kramling teaches away from further increasing the thickness of the intermediate layer beyond 0.76 mm.

Further, the specification of the present invention states at page 2, last two lines to page 3, line 5:

“In an unexpected manner, the inventors became aware that the increase in the thickness of the intercalary adhesive has the effect of reducing the extent of laceration phenomenon, in particular in the circumstances previously cited.

Consequently, the invention has as its subject the use of a laminated glazing composed essentially of two sheets of glass bound by means of an intercalary adhesive layer with a thickness in excess of 0.76 mm as an anti-laceration glazing, in particular for automobiles and transport vehicles.”

Kramling not only teaches away from further increasing the thickness of the intermediate layer beyond 0.76 mm, but the reference also fails to recognize that such increase would result in reducing the extent of the laceration phenomenon. Since Kramling does not disclose or suggest the claimed thickness of more than 0.76 mm of the intercalary adhesive layer, the glazing of Kramling also cannot have the claimed Triplex Laceration Index of 7 or less in a non-intact and bent state. These defects of Kramling have also been recognized by the Examiner. See Office Action of October 27, 2003, at page 24th paragraph.

The Examiner cites Rieser for an adhesive interlayer having a thickness of 0.03-0.06 in

(0.76-1.52 mm). However, as stated above Kramling actually teaches away from increasing the thickness of the interlayer. If the proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification (*In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984)). Clearly, the pane of Kramling having an interlayer thickness larger than 0.76 would make the pane too heavy and too costly. This is exactly what Kramling wants to avoid. The proposed modification would render the pane of Kramling unsatisfactory for its intended purpose (too heavy) and thus there is no motivation to make the proposed modification.

In addition, Rieser fails to disclose or suggest the core compressive stress in the glass sheets and that the glazing, in a non-intact and bent state, has a Triplex Laceration Index of 7 or less.

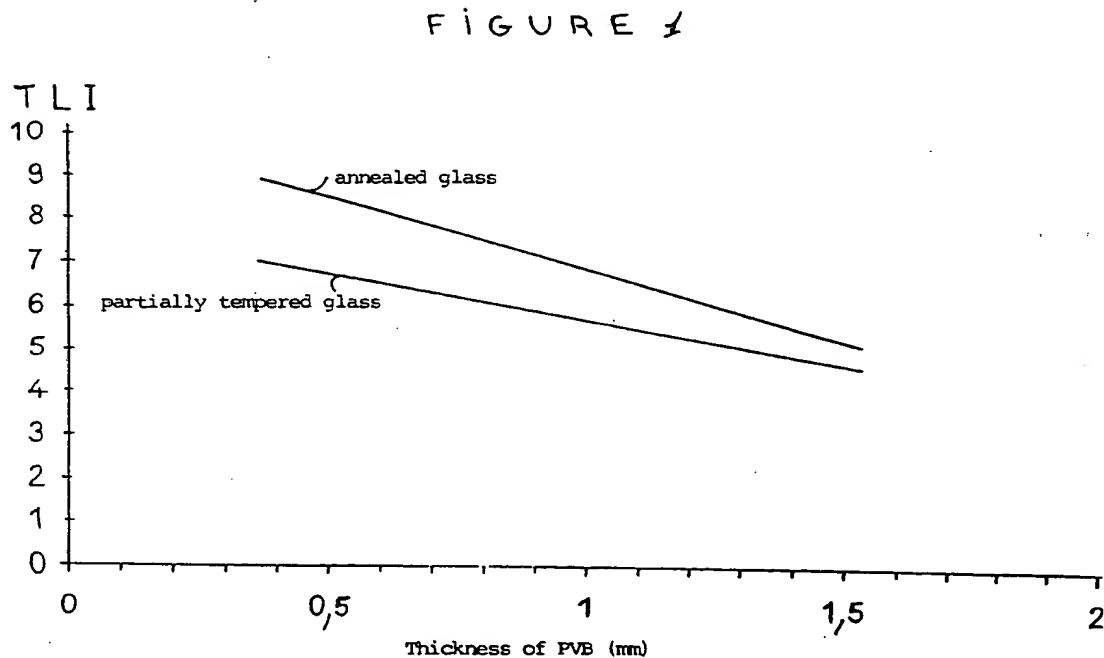
Rieser discloses laminated safety glass with two chemically tempered glass sheets. Rieser at column 3, lines 38-43, discloses that in chemical tempering, the compressive stress can range from a relatively high level at the surfaces to zero at a depth of only a few thousandths of an inch below the surface. However, Rieser does not specify the core compressive stress in the glass sheets or the TLI.

With regard to the failure of Kramling as well as Rieser to disclose the claimed TLI of 7 or less, the Examiner argues that the TLI is intrinsic to a glazing. See Office Action of October 27, 2003, page 3, line 3 from the bottom. However, as also pointed out by the Examiner, there are many variables that influence the TLI. See Office Action of October 27, 2003, page 3, lines 3-6 from the bottom. Neither Kramling nor Rieser disclose how to make a pane having the claimed TLI. The fact that the TLI is influenced by the thickness of the interlayer was only discovered by the present inventors and not by Kramling or Rieser. Thus, Kramling in view of Rieser or Rieser in view of Kramling do not disclose all claim limitations.

Even further, any *prima facie* case of obviousness based on the cited prior art is rebutted by the significant reduction in injuries that result when a person strikes the claimed glazing, which "in a non-intact and bent state, has a Triplex Laceration Index of 7 or less".

The cited prior art discloses laminated glass for reducing injuries to people caused by striking against intact, unbroken, glass in a laminated glazing. However, the cited prior art fails to suggest improved protection for people striking against non-intact laminated glazing.

The superior anti-laceration properties of the glazing produced by the claimed method are discussed in specification at Example 1 and illustrated in Fig. 1, which is reproduced below.



The partially tempered glass in Fig. 1 has a surface stress of 45 ± 10 MPa, which is equivalent to a core compressive stress in the central zone approximately equal to 22 ± 5 MPa.

Specification at page 8, lines 20-21. In contrast, the annealed glass in Fig. 1 has a core compressive stress of approximately zero. Fig. 1 shows that laminated glazing produced by the

method of independent Claim 1 using the compressively stressed partially tempered glass exhibits a significantly lower TLI, indicative of lacerations of less severity, than laminated glazing produced using the non-compressively stressed annealed glass.

Because the cited prior art fails to suggest the significant reduction in injury ("Triplex Laceration Index of 7 or less") to persons upon striking non-intact and bent glazing produced according to the present invention by adhering together, with an intercalary adhesive layer having a thickness of more than 0.76 mm, two sheets of glass each having a thickness of from 1.5 to 3 mm and having a core compressive stress in the central zone ranging from 20 to 50 MPa, any *prima facie* case of obviousness is rebutted.

Thus, Claims 12, 15-19 and 28-29 are Not Obvious over Kramling et al in view of Rieser et al, or alternatively over Rieser et al in view of Kramling et al within the meaning of 35 U.S.C. §103(a).

2. Claims 20-22 stand rejected as obvious under 35 U.S.C. §103(a) over Kramling et al in view of Rieser et al, or alternatively over Rieser et al in view of Kramling et al, and further in view of page 2, 4th paragraph of the specification of the present invention.

A. Group II: Claims 20-22

Claims 20 and 22 depend indirectly on Claim 12.

Claim 20 relates to the method of Claim 18, wherein said intercalary adhesive layer comprises said polyethylene; and said polyethylene is in the form of a ionomer resin.

Claim 21 relates to the method of Claim 20, wherein said ionomer resin is a (meth)acrylic acid and ethylene copolymer.

Kramling and Rieser have been discussed above.

The specification states at page 2, 4th paragraph:

“Patent application EP 0 816 064 A1 relates to the lightening of the same type of glazing with retention of satisfactory mechanical properties, particularly in deflective strength. The use of thin sheets of glass, with thicknesses approximately equal to 0.5 mm, is made possible by the utilization of special, relatively hard intercalations, having a Young's modulus at least equal to 20 MPa, such as an ionomer resin, certain polyurethanes, certain polyesters, poly(ethylene terephthalate), certain acrylic resins.”

There is nothing in the paragraph that cures the defects of Kramling and/or Rieser with regard to TLI, thickness of the intercalary adhesive layer and core compressive strength in the central zone.

Thus, Claims 20-22 are Not Obvious within the meaning of 35 U.S.C. §103(a) over Kramling et al in view of Rieser et al, or alternatively over Rieser et al in view of Kramling et al, and further in view of page 2, 4th paragraph of the specification of the present invention.

3. Claims 26 and 27 stand rejected as obvious under 35 U.S.C. §103(a) over Kramling et al in view of Rieser et al, or alternatively over Rieser et al in view of Kramling et al, and further in view of Fukawa et al.

A. Group III: Claims 26 and 27

Claims 26 and 27 depend directly on Claim 12.

Claim 26 relates to the method of Claim 12, wherein said anti-laceration glazing comprises at least one functional layer.

Claim 27 relates to the method of Claim 12, wherein at least one of the outer faces of the anti-laceration glazing comprises a plastic sheet.

Fukawa is cited for disclosing a functional layer in a laminated glass and a plastic sheet on the laminated glass. Office Action of October 27, 2003, at page 5, section 5. However, there is nothing in the paragraph that cures the defects of Kramling and/or Rieser with regard to TLI,

thickness of the intercalary adhesive layer and core compressive strength in the central zone.

Thus, Claims 26 and 27 are Not Obvious within the meaning of 35 U.S.C. §103(a) over Claims 26 and 27 are obvious under 35 U.S.C. §103(a) over Kramling et al in view of Rieser et al, or alternatively over Rieser et al in view of Kramling et al, and further in view of Fukawa et al.


X. RELIEF REQUESTED

Reversal of the Examiner's rejection of the appealed claims under and 35 U.S.C. §103(a) is requested.

Respectfully submitted,

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APPENDIX I

The appealed claims read as follows:

Claim 12: A method of making a anti-laceration automobile side window glazing comprising adhering two sheets of glass adapted to fit an automobile side window with an intercalary adhesive layer, wherein

said intercalary adhesive layer has a thickness of more than 0.76 mm;

each of said two sheets of glass has a thickness of from 1.5 to 3 mm;

each of said two sheets of glass has a core compressive stress in the central zone ranging from 20 to 50 MPa; and

said glazing, in a non-intact and bent state, has a Triplex Laceration Index of 7 or less.

Claim 15: The method of Claim 12, wherein said intercalary adhesive layer has a thickness of not more than 2 mm.

Claim 16: The method of Claim 15, wherein said intercalary adhesive layer has a thickness of not more than 1.90 mm.

Claim 17: The method of Claim 15, wherein said intercalary adhesive layer has a thickness of not more than 1.53 mm.

Claim 18: The method of Claim 12, wherein said intercalary adhesive layer comprises one or more layers of plastic, wherein said plastic is selected from the group consisting of polyvinylbutyral, polyurethane, RIM polyurethane, polycarbonate, poly(methyl methacrylate),

polypropylene, ethylene-vinyl acetate copolymer, cycloolefinic copolymer, polyethylene, thermoplastic polyester, unsaturated heat-hardening polyester, acrylic resin, and vinyl chloride-glycidyl methacrylate copolymer.

Claim 19: The method of Claim 18, wherein said intercalary adhesive layer comprises said polyurethane; and said polyurethane is a thermoplastic polyurethane.

Claim 20: The method of Claim 18, wherein said intercalary adhesive layer comprises said polyethylene; and said polyethylene is in the form of a ionomer resin.

Claim 21: The method of Claim 20, wherein said ionomer resin is a (meth)acrylic acid and ethylene copolymer.

Claim 22: The method of Claim 18, wherein said intercalary adhesive layer comprises said thermoplastic polyester; and said thermoplastic polyester is a poly(ethylene terephthalate).

Claim 26: The method of Claim 12, wherein said anti-laceration glazing comprises at least one functional layer.

Claim 27: The method of Claim 12, wherein at least one of the outer faces of the anti-laceration glazing comprises a plastic sheet.

Claim 28: An anti-laceration automobile side window glazing produced by the method of Claim 12.

Claim 29: An automobile comprising the anti-laceration automobile side window glazing of Claim 28.